

Serial No. 09/745,873
Amdt. dated January 3, 2005
Reply to Office Action of October 18, 2004

Docket No. P-0136

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended) A method for allocating channels in a CDMA packet data system, comprising:
 - providing channel availability information for ~~each of a plurality of all~~ channels from a base station to each of a plurality of terminals;
 - dynamically allocating available channels to corresponding ones of the plurality of terminals to allow transmission of packet data according to an available or unavailable state of each channel; and
 - transmitting a state signal from the base station over each of the allocated channels indicating the unavailable state of the allocated channels,

wherein dynamically allocating the available channel comprises:

simultaneously monitoring, by each terminal, all of the channels in parallel to detect whether the state signal indicating channel availability indicates a channel is idle.

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2. (Original) The method of claim 1, wherein the base station transmits information containing all PN codes used by the base station to each one of the plurality of terminals.

3. (Currently Amended) The method of claim 1, wherein dynamically allocating the available channels comprises:

~~simultaneously monitoring each of the plurality of channels in parallel to detect whether the state signal indicating channel availability is transmitted by the base station over any of the plurality of channels;~~

sending a packet of data through an idle channel, if an idle channel signal is detected; and

waiting until an idle channel is available, if an occupied channel signal is detected.

4. (Currently Amended) The method of claim ~~[[3]]~~ 1, wherein simultaneously monitoring each of the plurality of channels comprises detecting on each channel one of a power control signal and an idle signal, wherein the power control signal is an occupied channel signal indicating unavailability of the channel, and the idle channel signal indicates channel availability.

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5. (Previously Presented) The method of claim 1, wherein transmitting the state signal from the base station comprises:

transmitting a power control signal through a downward link channel corresponding to the allocated channel through which a packet of data is transmitted when synchronization is acquired using a preamble of the data packet; and

transmitting a channel occupancy release signal through the downward link channel corresponding to the allocated channel through which the data packet was transmitted when the data packet has been fully received.

6. (Original) The method of claim 1, wherein each of the available channels are dynamically allocated to different ones of the plurality of terminals.

7. (Previously Presented) The method of claim 6, wherein each one of the plurality of channels comprises a traffic channel and a signaling channel, and wherein the packet data is transmitted over the data channel and the state signal is transmitted over the signaling channel.

8. (Currently Amended) A method for transmitting packet data by dynamically allocating channels in a communication system, comprising:

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providing channel availability information for ~~each of a plurality of all~~ channels from a base station to each of a plurality of terminals;

monitoring by each terminal, the channel availability information for all of the channels;

determining which, if any, of all of the ~~plurality of~~ channels is in an occupied state using a corresponding plurality of PN codes; and

one of transmitting a data packet through a dynamically allocated unoccupied one of the plurality of channels for transmission, and monitoring each ~~one of the plurality of channels~~ channel to determine when the occupied state of one of the ~~plurality of~~ channels is released, if there is no channel in the unoccupied state.

9. (Previously Presented) The method of claim 8, wherein determining the occupied state comprises simultaneously multiplying the PN code for each channel by a signal received from a base station.

10. (Original) The method of claim 9, wherein the multiplication is performed at a rate equal to a power control signal transmission rate of the base station.

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11. (Currently Amended) The method of claim 8, wherein transmitting the data packet comprises:

determining that a channel using a prescribed one of the plurality of PN codes is in an idle state and transmitting the data packet on the idle channel, if a base station transmits an idle signal on the channel; and

determining that each ~~one of the plurality of channels~~ channel is in an occupied state and waiting until one of the ~~plurality of channels~~ becomes idle if the base station transmits a power control signal on each channel.

12. (Original) The method of claim 11, wherein a signal transmitted from the base station is multiplied by each one of the plurality of PN codes to determine if the channel associated with a prescribed one of the PN codes is occupied or idle.

13. (Original) The method of claim 12, wherein a power control signal transmitted on a channel indicates that the channel is occupied.

14. (Original) The method of claim 12, wherein each channel has a unique PN code.

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15. (Original) The method of claim 12, wherein each channel comprises a signaling channel and a traffic channel.

16. (Currently Amended) The method of claim 11, wherein a terminal transmitting the data packet has stored in the terminal the PN code for each ~~one of the plurality of channels~~ channel.

17. (Currently Amended) A method for informing a plurality of terminals of an occupied or unoccupied state of channels of a CDMA system, comprising:
providing a unique PN code for each ~~one of a plurality of~~ all channels used in the CDMA system from a base station to each one of a plurality of terminals in communication with the base station;

monitoring, by each terminal, all of the channels to determine whether or not one of the channels is available;

transmitting a power control signal over an occupied channel using the PN code of the occupied channel; and

transmitting an idle signal over an idle channel using the same PN code as the idle channel.

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18. (Original) The method of claim 17, wherein the power control signal is transmitted on a channel when the base station acquires synchronization and phase of a data packet transmitted by one of the plurality of terminals, and wherein the idle signal is then transmitted on the channel when the base station has received the entire packet of data.

19. (Currently Amended) The method of claim 18, wherein each one of the plurality of terminals has stored therein the unique PN code of each ~~one of the plurality of channels~~ channel.

20. (Currently Amended) A method allocating channels in a CDMA packet data system, comprising:

receiving channel availability information for ~~each of a plurality of~~ all channels from a base station;

dynamically allocating an available channel and transmitting a data packet to the base station using the allocated channel;

receiving from the base station a power control signal on the allocated channel,

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wherein a plurality of terminals are configured to simultaneously monitor channel availability information for all of the channels of the base station and transmit data on the first available channel detected.

21. (Original) The method of claim 20, wherein the power control signal is released when the data packet has been transmitted.
22. (Original) The method of claim 20, wherein the power control signal indicates unavailability of the channel.
23. (Canceled)
24. (Previously Presented) The method of claim 8, further comprising:
establishing in a base station the plurality of channels for data communication, each having a unique PN code;
receiving from the base station the unique PN codes of each of the plurality of channels; and
monitoring each of the plurality of channels to determine and occupy the state of each channel.

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25. (Currently Amended) A method for allocating channels comprising:
~~receiving channel information by a mobile terminal regarding at least one~~
~~channel allocated to at least one other mobile terminal;~~
monitoring, by a mobile terminal, all channels from a base station;
~~detecting, by the mobile terminal whether the at least one channel of the at~~
~~least one other mobile terminal is being used for data transmission, an available channel from~~
all of channels from the base station; and
~~transmitting, by the mobile terminal, data over the at least one channel of the~~
~~at least one other mobile terminal when the at least one channel of the at least one other~~
~~mobile terminal is not being used for data transmission is detected~~ available channel.
26. (Previously Presented) The method of claim 25, further comprising:
~~transmitting from the base station to the mobile terminal a state signal~~
~~indicating whether the at least one channel of the at least one other mobile terminal is~~
~~available or unavailable for transmission.~~
27. (Previously Presented) The method of claim 25, further comprising:
~~transmitting from the base station to the mobile of terminal all of the PN~~
~~codes used by the base station.~~

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28. (New) The method of claim 1, wherein a terminal is not pre-allocated to a specific channel.

29. (New) The method of claim 8, wherein a terminal is not pre-allocated to a specific channel.

30. (New) The method of claim 17, wherein a terminal is not pre-allocated to a specific channel.

31. (New) The method of claim 20, wherein a terminal is not pre-allocated to a specific channel.

32. (New) The method of claim 25, wherein the mobile terminal is not pre-allocated to a specific channel.